

## REMARKS

This is a full and timely response to the Office Action mailed January 7, 2008. Reconsideration and allowance of the application and all presently pending claims are respectfully requested.

Claims 1-7, 9-10, 12-14, and 17-19 are currently pending. Claims 1, 9, 10, and 19 have been amended. Claims 8, 11, 15, and 16 are canceled. The prior art made of record has been considered but is not believed to affect the patentability of the presently pending claims. Applicants believe that no new matter has been added and that a new search is not required to examine the amended claims and the newly added claims.

## DOUBLE PATENTING

Claims 1-7, 9, 10, 12-14, and 17-19 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of copending application No. 10/700,857. Applicants will consider the timely filing of a terminal disclaimer upon a finding of allowable subject matter.

### Claim 1

Independent claim 1 stands rejected under 35 U.S.C. §102(b) as being anticipated by Soto et al. (U.S. Patent No. 5,008,325) and Anand et al. (U.S. Patent No. 5,037,864). Applicants traverse the rejections and assertions in the Office Action and submit that the rejection of claim 1 under 35 U.S.C. §102 should be withdrawn.

Soto and Anand, individually or in combination, do not teach, suggest, or disclose a **"urea/urethane polymer consisting of** (a) repeating units derived from a hydroxy-terminated copolymer prepared from tetrahydrofuran and one or both of an alkylene oxide and a cyclic acetal, and (b) repeating units derived from a polyisocyanate, wherein the polyisocyanate is selected from the group consisting of aromatic polyisocyanates and mixtures thereof... wherein the polymer is derived without polyamine chain extenders" as recited in claim 1. Thus, claim 1 allowable over the cited art.

In particular, Soto is directed to polyurethane-urea resins with incorporated hydrophobic microparticle fillers. Soto teaches two methods by which this is accomplished at Column 4, lines 53-60:

*This is advantageously done by substituted a copolymer polyol for all or a portion of the polyol component used in the making the polyurethane-urea. Alternatively, a particulate hydrophobic polymer having isocyanate-reactive groups at least on the surface of the particles can be prepared in a separate step and combined with a polyol for reaction with a polyisocyanate. Soto prefers the former method where the copolymer polyol includes the hydrophobic monomer which may be vinyl, vinylidene halides and vinyl aromatic monomers.*

Soto fails to include several elements of the claims. Soto requires the use of the copolymer including the hydrophobic monomer. Even though this copolymer may be combined with a copolymer of tetrahydrofuran and ethylene oxide or propylene oxide, Soto fails to teach a urea/urethane polymer consisting of (a) repeating units derived from a hydroxy-terminated copolymer prepared from tetrahydrofuran and one or both of an alkylene oxide and a cyclic acetal, and (b) repeating units derived from a polyisocyanate because Soto requires the inclusion of the hydrophobic monomer.

In regard to Anand, Anand fails to disclose every element of the claims as amended. Specifically, Anand fails to disclose the preparation of a the polymer is derived without polyamine chain extenders, fails to disclose the limitation of the urea groups which include R<sup>1</sup> as an aliphatic hydrocarbon radical, and fails to disclose a polyisocyanate selected from the group consisting of aromatic polyisocyanates and mixtures thereof.

With respect to the polyisocyanate, Anand requires, "an excess of an aliphatic or cycloaliphatic diisocyanate, or mixture of an aliphatic or cycloaliphatic diisocyanate with an aromatic isocyanate." Anand's Abstract. Claim 1 requires that the polyisocyanate consist of an aromatic polyisocyanate. Anand requires a combination of aliphatic and aromatic isocyanate and, therefore, does not anticipate the use of an aromatic isocyanate alone.

The Office Action fails to allege that the cited references teach or suggest all of the elements of independent claim 1. In particular, Soto provides no disclosure, teaching, or suggestion as to the element limiting the urea units to less than about 2 mole percent of a group having R<sup>1</sup> as an aliphatic hydrocarbon radical. Soto also fails to disclose that the polymer is derived without polyamine chain extenders. Anand fails to disclose the preparation of a the polymer is derived without polyamine chain extenders, fails to disclose the limitation of the urea groups which include R<sup>1</sup> as

an aliphatic hydrocarbon radical, and fails to disclose a polyisocyanate selected from the group consisting of aromatic polyisocyanates and mixtures thereof.

"35 U.S.C. 132 requires that the applicant be notified of the reasons for the rejection of the claim so that he or she can decide how best to proceed." MPEP § 2141(II). Thus, for at least the reason that the Office Action fails to articulate a finding that the cited references include each element claimed, the rejection of claim 1 should be withdrawn.

### Claims 2-7

Applicants traverse each of the §102 rejections in the Office Action. Applicants respectfully submit that pending dependent claims 2-7 include every feature of independent claim 1 and that Soto or Anand fails to disclose, teach, or suggest, individually or in combination, at least the features of claim 1. Thus, pending dependent claims 2-7 are also allowable over the prior art of record. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

### Claim 9

Independent claim 9 stands rejected under 35 U.S.C. §103(a) as being obvious in view of Soto et al. (U.S. Patent No. 5,008,325), Anand et al. (U.S. Patent No. 5,037,864) and Berger (U.S. Patent No. 3,178,310). Applicants traverse the rejections and assertions in the Office Action and submit that the rejection of claim 9 under 35 U.S.C. §103 should be withdrawn.

Soto, Anand, and Berger, individually or in combination, do not teach, suggest, or disclose "a urea/urethane polymer and a surfactant; wherein ***the urea/urethane polymer consists of*** (a) repeating units derived from a hydroxy-terminated copolymer prepared from tetrahydrofuran and one or both of an alkylene oxide and a cyclic acetal, and (b) repeating units derived from a polyisocyanate, wherein the polyisocyanate is selected from the group consisting of aromatic polyisocyanates and mixtures thereof... wherein the polymer is derived without polyamine chain extenders" as recited in claim 9. Thus, claim 9 allowable over the cited art.

In particular, Soto is directed to polyurethane-urea resins with incorporated hydrophobic microparticle fillers. Soto teaches two methods by which this is accomplished at Column 4, lines 53-60:

*This is advantageously done by substituted a copolymer polyol for all or a portion of the polyol component used in the making the polyurethane-urea. Alternatively, a particulate hydrophobic polymer having isocyanate-reactive groups at least on the surface of the particles can be prepared in a separate step and combined with a polyol for reaction with a polyisocyanate.* Soto prefers the former method where the copolymer polyol includes the hydrophobic monomer which may be vinyl, vinylidene halides and vinyl aromatic monomers.

Soto fails to include several elements of the claims. Soto requires the use of the copolymer including the hydrophobic monomer. Even though this copolymer may be combined with a copolymer of tetrahydrofuran and ethylene oxide or propylene oxide, Soto fails to teach a urea/urethane polymer consisting of (a) repeating units derived from a hydroxy-terminated copolymer prepared from tetrahydrofuran and one or both of an alkylene oxide and a cyclic acetal, and (b) repeating units derived from a polyisocyanate because Soto requires the inclusion of the hydrophobic monomer.

In regard to Anand, Anand fails to disclose every element of the claims as amended. Specifically, Anand fails to disclose the preparation of a the polymer is derived without polyamine chain extenders, fails to disclose the limitation of the urea groups which include  $R^1$  as an aliphatic hydrocarbon radical, and fails to disclose a polyisocyanate selected from the group consisting of aromatic polyisocyanates and mixtures thereof.

With respect to the polyisocyanate, Anand requires, "an excess of an aliphatic or cycloaliphatic diisocyanate, or mixture of an aliphatic or cycloaliphatic diisocyanate with an aromatic isocyanate." Anand's Abstract. Claim 9 requires that the polyisocyanate consist of an aromatic polyisocyanate. Anand requires a combination of aliphatic and aromatic isocyanate and, therefore, does not anticipate the use of an aromatic isocyanate alone.

The Office Action fails to allege that the cited references teach or suggest all of the elements of independent claim 9. In particular, Soto provides no disclosure, teaching, or suggestion as to the element limiting the urea units to less than about 2 mole percent of a group having  $R^1$  as an aliphatic hydrocarbon radical. Soto also fails to disclose that the polymer is derived without polyamine chain extenders. Anand fails to disclose the preparation of a the polymer is derived without polyamine chain extenders, fails to disclose the limitation of the urea groups which include  $R^1$  as an aliphatic hydrocarbon radical, and fails to disclose a polyisocyanate selected from

the group consisting of aromatic polyisocyanates and mixtures thereof. Berger does not cure any of these deficiencies.

"35 U.S.C. 132 requires that the applicant be notified of the reasons for the rejection of the claim so that he or she can decide how best to proceed." MPEP § 2141(II). Thus, for at least the reason that the Office Action fails to articulate a finding that the cited references include each element claimed, the rejection of claim 9 should be withdrawn.

### **Claim 10**

Independent claim 10 stands rejected under 35 U.S.C. §102(b) as being anticipated by Soto et al. (U.S. Patent No. 5,008,325) and Anand et al. (U.S. Patent No. 5,037,864). Applicants traverse the rejections and assertions in the Office Action and submit that the rejection of claim 10 under 35 U.S.C. §102 should be withdrawn.

Soto and Anand, individually or in combination, do not teach, suggest, or disclose an "ionomeric urea/urethane polymer consisting of (a) repeating units derived from an aliphatic polyether polyol having a molecular weight of about 700 to about 1500, and (b) repeating units derived from a polyisocyanate, wherein the polyisocyanate is selected from the group consisting of aromatic polyisocyanates and mixtures thereof... wherein the polymer is derived without polyamine chain extenders" as recited in claim 10. Thus, claim 10 allowable over the cited art.

In particular, Soto is directed to polyurethane-urea resins with incorporated hydrophobic microparticle fillers. Soto teaches two methods by which this is accomplished at Column 4, lines 53-60:

*This is advantageously done by substituted a copolymer polyol for all or a portion of the polyol component used in the making the polyurethane-urea. Alternatively, a particulate hydrophobic polymer having isocyanate-reactive groups at least on the surface of the particles can be prepared in a separate step and combined with a polyol for reaction with a polyisocyanate. Soto prefers the former method where the copolymer polyol includes the hydrophobic monomer which may be vinyl, vinylidene halides and vinyl aromatic monomers.*

Soto fails to include several elements of the claims as amended. Soto requires the use of the copolymer including the hydrophobic monomer. Even though this copolymer may be combined with a copolymer of tetrahydrofuran and ethylene oxide or propylene oxide, Soto fails to teach a urea/urethane polymer consisting of (a) repeating units derived from a hydroxy-terminated copolymer prepared from

tetrahydrofuran and one or both of an alkylene oxide and a cyclic acetal, and (b) repeating units derived from a polyisocyanate because Soto requires the inclusion of the hydrophobic monomer.

In regard to Anand, Anand fails to disclose every element of the claims as amended. Specifically, Anand fails to disclose the preparation of a the polymer is derived without polyamine chain extenders, fails to disclose the limitation of the urea groups which include  $R^1$  as an aliphatic hydrocarbon radical, and fails to disclose a polyisocyanate selected from the group consisting of aromatic polyisocyanates and mixtures thereof.

With respect to the polyisocyanate, Anand requires, "an excess of an aliphatic or cycloaliphatic diisocyanate, or mixture of an aliphatic or cycloaliphatic diisocyanate with an aromatic isocyanate." Anand's Abstract. Claim 10 requires that the polyisocyanate consist of an aromatic polyisocyanate. Anand requires a combination of aliphatic and aromatic isocyanate and, therefore, does not anticipate the use of an aromatic isocyanate alone.

The Office Action fails to allege that the cited references teach or suggest all of the elements of independent claim 10. In particular, Soto provides no disclosure, teaching, or suggestion as to the element limiting the urea units to less than about 2 mole percent of a group having  $R^1$  as an aliphatic hydrocarbon radical. Soto also fails to disclose that the polymer is derived without polyamine chain extenders. Anand fails to disclose the preparation of a the polymer is derived without polyamine chain extenders, fails to disclose the limitation of the urea groups which include  $R^1$  as an aliphatic hydrocarbon radical, and fails to disclose a polyisocyanate selected from the group consisting of aromatic polyisocyanates and mixtures thereof.

"35 U.S.C. 132 requires that the applicant be notified of the reasons for the rejection of the claim so that he or she can decide how best to proceed." MPEP § 2141(II). Thus, for at least the reason that the Office Action fails to articulate a finding that the cited references include each element claimed, the rejection of claim 10 should be withdrawn.

#### **Claims 12-14 and 17-18**

Applicants traverse each of the §102 rejections in the Office Action. Applicants respectfully submit that pending dependent claims 12-14 and 17-18

include every feature of independent claim 10 and that Soto or Anand fails to disclose, teach, or suggest, individually or in combination, at least the features of claim 10. Thus, pending dependent claims 12-14 and 17-18 are also allowable over the prior art of record. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

#### Claim 19

Independent claim 19 stands rejected under 35 U.S.C. §103(a) as being obvious in view of Soto et al. (U.S. Patent No. 5,008,325), Anand et al. (U.S. Patent No. 5,037,864) and Berger (U.S. Patent No. 3,178,310). Applicants traverse the rejections and assertions in the Office Action and submit that the rejection of claim 19 under 35 U.S.C. §103 should be withdrawn.

Soto, Anand, and Berger, individually or in combination, do not teach, suggest, or disclose "the ionomeric urea/urethane polymer consists of (a) repeating units derived from an aliphatic polyether polyol having a molecular weight of about 700 to about 1500, and (b) repeating units derived from a polyisocyanate, wherein the polyisocyanate is selected from the group consisting of aromatic polyisocyanates and mixtures thereof... wherein the polymer is derived without polyamine chain extenders" as recited in claim 19. Thus, claim 19 allowable over the cited art.

In particular, Soto is directed to polyurethane-urea resins with incorporated hydrophobic microparticle fillers. Soto teaches two methods by which this is accomplished at Column 4, lines 53-60:

*This is advantageously done by substituted a copolymer polyol for all or a portion of the polyol component used in the making the polyurethane-urea. Alternatively, a particulate hydrophobic polymer having isocyanate-reactive groups at least on the surface of the particles can be prepared in a separate step and combined with a polyol for reaction with a polyisocyanate. Soto prefers the former method where the copolymer polyol includes the hydrophobic monomer which may be vinyl, vinylidene halides and vinyl aromatic monomers.*

Soto fails to include several elements of the claims. Soto requires the use of the copolymer including the hydrophobic monomer. Even though this copolymer may be combined with a copolymer of tetrahydrofuran and ethylene oxide or propylene oxide, Soto fails to teach a urea/urethane polymer consisting of (a) repeating units derived from a hydroxy-terminated copolymer prepared from tetrahydrofuran and one or both of an alkylene oxide and a cyclic acetal, and (b) repeating units derived from a polyisocyanate because Soto requires the inclusion of the hydrophobic monomer.

In regard to Anand, Anand fails to disclose every element of the claims as amended. Specifically, Anand fails to disclose the preparation of a the polymer is derived without polyamine chain extenders, fails to disclose the limitation of the urea groups which include  $R^1$  as an aliphatic hydrocarbon radical, and fails to disclose a polyisocyanate selected from the group consisting of aromatic polyisocyanates and mixtures thereof.

With respect to the polyisocyanate, Anand requires, "an excess of an aliphatic or cycloaliphatic diisocyanate, or mixture of an aliphatic or cycloaliphatic diisocyanate with an aromatic isocyanate." Anand's Abstract. Claim 19 requires that the polyisocyanate consist of an aromatic polyisocyanate. Anand requires a combination of aliphatic and aromatic isocyanate and, therefore, does not anticipate the use of an aromatic isocyanate alone.

The Office Action fails to allege that the cited references teach or suggest all of the elements of independent claim 19. In particular, Soto provides no disclosure, teaching, or suggestion as to the element limiting the urea units to less than about 2 mole percent of a group having  $R^1$  as an aliphatic hydrocarbon radical. Soto also fails to disclose that the polymer is derived without polyamine chain extenders. Anand fails to disclose the preparation of a the polymer is derived without polyamine chain extenders, fails to disclose the limitation of the urea groups which include  $R^1$  as an aliphatic hydrocarbon radical, and fails to disclose a polyisocyanate selected from the group consisting of aromatic polyisocyanates and mixtures thereof. Berger does not cure any of these deficiencies.

"35 U.S.C. 132 requires that the applicant be notified of the reasons for the rejection of the claim so that he or she can decide how best to proceed." MPEP § 2141(II). Thus, for at least the reason that the Office Action fails to articulate a finding that the cited references include each element claimed, the rejection of claim 19 should be withdrawn.



### CONCLUSION

In light of the foregoing amendments and for at least the reasons set forth above, Applicants respectfully submit that all objections and/or rejections have been traversed, rendered moot, and/or accommodated. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested.

In addition, any other statements in the Office Action that are not explicitly addressed herein are not intended to be admitted. In addition, any and all findings of inherency are traversed as not having been shown to be necessarily present. Furthermore, any and all findings of well-known art and official notice, or statements interpreted similarly, should not be considered well known since the Office Action does not include specific factual findings predicated on sound technical and scientific reasoning to support such conclusions.

If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,



---

Christopher B. Linder  
Registration No. 47,751

**THOMAS, KAYDEN, HORSTEMEYER & RISLEY, L.L.P.**  
Suite 1500  
600 Galleria Parkway N.W.  
Atlanta, Georgia 30339  
(770) 933-9500